REMARKS

Claims 1-56 are pending. Claims 1-24 are rejected under 35 U.S.C. § 103(a). New claims 25-56 are added.

The drawings are objected to as failing to comply with 37 C.F.R. § 1.84(p)(5) because of reference numerals 50, 84, 90, and 98 are not mentioned in the description. Reference numeral 50 is mentioned at page 22, line 20. The paragraph at page 14, line 8 has been amended to mention reference numeral 50. The paragraph at page 20, line 11 has been amended to mention reference numeral 84. Reference numeral 90 is mentioned at page 21, line 28 and at page 23, line 11. Reference numeral 98 is mentioned in the Abstract. The paragraph at page 21, line 4 is also amended to mention reference numeral 98. No new matter is added.

The drawings are objected to as failing to comply with 37 C.F.R. § 1.84(p)(5) because of reference labels A, M, and S are mentioned in the description but omitted from the drawings. Reference labels A, M, and S are added to Figure 2 in a proposed drawing amendment. Subject to the proposed drawing amendment, therefore, the drawings comply with 37 C.F.R. § 1.84(p)(5).

A proposed drawing amendment is included for Figure 8. Input signal indices to Length 64 Despreader 122_{63} are changed to T(3087) and T(4095). This is consistent with 4096 outputs T(0) through T(4095) described at page 24, line 12.

A proposed drawing amendment is included for Figure 9. Input signal indices to Length 64 Despreader 122_{63} are changed to T(3087) and T(4095). This is consistent with 4096 outputs T(0) through T(4095) described at page 24, line 12. Segmenting Logic identification numerals of Figure 9 are changed from 126_0 and 126_1 to 136_0 and 136_1, respectively. This is in agreement with identification numerals at page 27, lines 9-18.

The Abstract of the disclosure is objected for exceeding 150 words in length. The Abstract is rewritten to have approximately 115 words.

The disclosure is objected to for informalities on page 4, line 3. The paragraph at page 3, line 25 is rewritten to correct these informalities. No new matter is added.

The paragraph at page 24, line 8 is rewritten to correct a signal index from T(4093) to T(4095). This is in agreement with the 4096 signals described at page 24, line 12. The paragraphs at page 27, line 9 and at page 27, line 22 are rewritten to agree with signal indices at Figure 9. No new matter is added.

Claims 1-9 and 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of Minn et al. (U.S. Pat. No. 6,088,347). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Applicant respectfully submits that there is no suggestion to combine applicant's admitted prior art with the teaching of Minn et al. in either reference. Moreover, such a proposed combination would not have been generally available to one of ordinary skill in the art, because the references are directed to entirely different purposes. Therefore, a combination of applicant's admitted prior art with the disclosure of Minn et al. is a product of Examiner's improper hindsight. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the

art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab,* 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). Here, the present invention and applicant's admitted prior art are both directed to transmitting a preamble to initiate wireless communication with a remote base station. By way of contrast, Minn et al. teach encoding data for transmitting after communications are established. The nature of the problem to be solved, therefore, is completely different. Thus, a combination of applicant's admitted prior art with Minn et al. would not have been obvious to one of ordinary skill in the art at the time of the present invention.

Furthermore, the combined references must teach or suggest all the claim limitations. Examiner's proposed combination, however, fails to teach all the claimed limitations. For example, claim 1 recites, "A method of operating a wireless communications unit to request a connection with a base station, comprising . . . generating a spread code using the selected orthogonal code, *the spread code arranged as a symbol of the selected code, repeated a selected number of repetitions*; and transmitting, to the base station, a preamble signal corresponding to the spread code." (emphasis added). Examiner concedes that applicant's admitted prior art does not disclose these limitations, but states "It would have been obvious to one of ordinary skill in the art at the time of the invention to have the spread code arranged as a symbol of the selected code, repeated a selected number of repetitions, since this is part of the CDMA IS-95 standard." In support of this statement, Examiner cites col. 1, lines 42-48; col. 2, lines 53-64; and col. 4, lines 3-19 from Minn et al. and nothing from IS-95. In fact, col. 4, lines 3-19 is the only citation that even mentions IS-95, and it fails to disclose these limitations. Therein, Minn et al. disclose modulating (Figure 6) a data signal $b_i[n]$ with "a cell-specific code PN $p_j[n]$ and a user-specific code $w_i[n]$." (col. 4, lines 3-6). Minn et al., however, fail to disclose a "spread code arranged as a symbol of the selected code" as required by claims 1-10.

Referring to Figure 4 of the present specification, multiplier 58 receives an input bitstream x(k) and a repeated Walsh Hadamard code. The input bitstream x(k) is assumed to be "1", so the output of operation 58 is a Walsh Hadamard code symbol itself. The repeated Walsh Hadamard code is then multiplied by cell-specific scrambling code c(k). (page 16, lines 12-17). Referring to Figure 5, a preferred embodiment of the present invention discloses a spread code 70 is arranged as a symbol h_i of the selected code, repeated a selected number of repetitions (256). It is this preamble signal corresponding to the spread code that is transmitted to a base station to request connection. As previously explained, Minn et al. fail to disclose these limitations. Minn et al. disclose transmitting *a data signal* modulated with cell-specific and user-specific codes. Minn et al. fail to teach or suggest transmitting either of both of the cell-specific or user-specific codes as a preamble. A combination of applicant's admitted prior art with Minn et al. fails to teach or suggest "A method of operating a wireless communications unit to request a connection with a base station, comprising . . . generating a spread code using the selected orthogonal code, *the spread code arranged as a symbol of the selected code, repeated a selected number of repetitions*; and transmitting, to the base station, a preamble signal corresponding to the spread code" as required by claims 1-10. (emphasis added). Thus, claims 1-10 are patentable under 35 U.S.C. § 103(a).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780

(Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references). The instant specification teaches significant advantages of the present invention over the prior art. Referring to the embodiment of Figure 7, the short coherency length (16) of each Walsh Hadamard code symbol allows preambles of rapidly moving mobile units to be reliably resolved, since the accumulated Doppler phase shift is insignificant over such a short code length. However, the repetition of the symbols (256) over the long code length (4096) provides the ability to resolve preambles transmitted by wireless units at widely varying distances within the cell. (page 23, lines 1-7). Minn et al. fail to teach or suggest such advantages. One of ordinary skill in the art at the time of the present invention would have no motivation, therefore, to combine Minn et al. with applicant's admitted prior art apart from access to the instant specification. Thus, claims 1-10 are patentable under 35 U.S.C. § 103(a).

If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (Claimed device was a blood filter assembly for use during medical procedures wherein both the inlet and outlet for the blood were located at the bottom end of the filter assembly, and wherein a gas vent was present at the top of the filter assembly. The prior art reference taught a liquid strainer for removing dirt and water from gasoline and other light oils wherein the inlet and outlet were at the top of the device, and wherein a pet-cock (stopcock) was located at the bottom of the device for periodically removing the collected dirt and water. The reference further taught that the separation is assisted by gravity. The Board concluded the claims were *prima facie* obvious, reasoning that it would have been obvious to turn the reference device upside down. The court reversed, finding that if the prior art device was turned upside down it would be inoperable for its intended purpose because the gasoline to be filtered would be trapped at the top, the water and heavier oils sought to be separated would flow out of the outlet instead of the purified gasoline, and the screen would become clogged.). By way of comparison, Minn et al. disclose modulating a data signal $b_l[n]$ with "a

cell-specific code PN $p_j[n]$ and a user-specific code $w_i[n]$" to communicate over a wireless network. (col. 4, lines 3-6). If this data signal $b_1[n]$ is modified to an all one condition to emulate the present invention, there is no data signal or communication over the wireless network. Communication in the modified cell is rendered inoperative. Therefore, there can be no suggestion or motivation to make such a modification. Thus, claims 1-10 are patentable under 35 U.S.C. § 103(a).

Claims 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of Minn et al. Claims 20-22 recite "A wireless communications unit, comprising: . . . a programmable digital circuit, for performing digital operations upon signals to be transmitted and received, the programmable digital circuit programmed to request a connection with a base station by performing operations comprising . . . generating a spread code using the selected orthogonal code, *the spread code arranged as a symbol of the selected code, repeated a selected number of repetitions*; and transmitting, to the base station, a preamble signal corresponding to the spread code." (emphasis added). At least the emphasized limitations are common to claims 1-10 as previously discussed. Thus, for all the foregoing reasons, claims 20-22 are also patentable under 35 U.S.C. § 103(a).

Claims 10-11, 13-15, and 17-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of Minn et al. and further in view of Madhow et al. (U.S. Pat. No. 6,175,587). Claim 10 depends from claim 1 and is, therefore, patentable as depending from a patentable claim as previously discussed. Claims 11-19 recite "A method of operating a base station to recover a preamble code transmitted by a wireless unit, comprising the steps of: *receiving a signal corresponding to a preamble*; arranging the signal into a bitstream; *de-interleaving bits from the bitstream, to group corresponding bits from each of a plurality of repetitions of a symbol length, into a plurality of groups*; *despreading the bits of each of the plurality of groups to recover a plurality of symbol bits in a sequence*, the sequence having a length corresponding to a length of the preamble code; and *correlating the sequence to identify a code*, the code corresponding to one of a set of

orthogonal codes." (emphasis added). None of the cited references, taken alone or in combination, disclose these limitations. In fact, with the exception of applicant's admitted prior art, none of the cited references even include the word "preamble." As previously discussed, a combination of applicant's admitted prior art with Minn et al. is improper due to the completely different purposes of their respective disclosures. Even so, a combination of applicant's admitted prior art with Minn et al. fails to disclose a preamble having a plurality of repetitions of an orthogonal code. Furthermore, neither applicant's admitted prior art nor Minn et al. disclose advantages of the present invention. Finally, assuming arguendo that the disclosure of Minn et al. could be modified with hindsight from the instant specification, it would then fail in the intended purpose. Examiner cites Madhow et al. for the disclosure of operating a base station. For all the foregoing reasons, therefore, claims 11-19 are patentable under 35 U.S.C. § 103(a) in view of applicant's admitted prior art combined with Minn et al. and further in view of Madhow et al.

Claims 12 and 23-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of Minn et al. and further in view of Madhow et al. and further in view of Bottomley (U.S. Pat. No. 5,237,586). Claim 12 depends from claim 11 and is, therefore, patentable as depending from a patentable claim as previously discussed. Examiner cites Bottomley for the disclosure of a delay line. Referring to Figure 7 of the instant specification, claims 23-24 recite "A base station for a wireless communications network, comprising: . . . baseband circuitry comprising: . . . demodulating and despreading circuitry, for *recovering a preamble code* transmitted by a wireless unit, comprising: . . . a sequence of delay lines (100_0-100_{255}) for receiving a bitstream corresponding to a received signal including the preamble code; a plurality of despreader functions (102_0-102_{15}), each coupled to a tap position in each of the sequence of delay lines, for *receiving corresponding bits from corresponding positions in each of the delay lines, and for generating a bit of a symbol therefrom*; and a code correlation function (104), for comparing the symbol presented by each of the plurality of despreader functions against a set of orthogonal codes, and for *generating a signal indicating the correlation of the presented symbol with each of the*

orthogonal codes in the set." (emphasis added). Applicant reiterates all the foregoing arguments with respect to claims 1-22. Additionally, no combination of the cited references discloses the emphasized limitations of claims 23-24. For example, the embodiment of Figure 7 and claims 23-24 are directed to recovering a preamble code. The each of the despreader functions receive corresponding bits from corresponding positions in each of the delay lines for generating a signal indicating correlation of the presented signal with an orthogonal code. Thus, the presented signal must be repeated a plurality of times to have corresponding bits from corresponding positions in each of the delay lines. Furthermore, since the presented signal correlates to an orthogonal code, the orthogonal code must be repeated a plurality of times in the preamble. As previously discussed, these limitations are neither taught nor suggested by any combination of the cited references. For all the foregoing reasons, therefore, claims 12 and 23-24 are patentable under 35 U.S.C. § 103(a) in view of applicant's admitted prior art combined with Minn et al. and further in view of Madhow et al. and further in view of Bottomley.

New claims 25-46 are added. Claims 25-29 correspond to the exemplary embodiment of Figure 6. Claims 30-34 correspond to the exemplary embodiment of Figure 7. Claims 35-41 correspond to the exemplary embodiment of Figure 8. The segmented nature of decoding of the embodiment of Figure 8 advantageously provides additional immunity to Doppler shift effects over the embodiment of Figure 7. The duration over which coherency is required is limited to sixty-four symbols. Each of the segments advantageously contributes to the code resolution operation. (page 26, lines 22-25). Claims 35 and 42-46 correspond to the exemplary embodiment of Figure 9. The embodiment of Figure 9 advantageously provides additional immunity to Doppler shift effects over the embodiments of Figures 7 and 8 by differential detection of code symbols. The preamble corresponds to a sequence of differences that are maximized for the symbol from segment to segment. (page 27, lines 4-8). Applicant fails to find any teaching or suggestion of these advantages in any of the cited references.

In view of the foregoing, applicant respectfully requests approval or the present amendment, reconsideration of claims 1-24, and allowance of claims 1-56. If the Examiner finds any issue that is unresolved, please call applicant's attorney by dialing the telephone number printed below.

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